

The king is now employing a person to take drawings of all the statues, and principal paintings; with an intent to publish them, together with an account of Herculaneum. The statues cannot be made to appear more beautiful than they really are: but the writer imagines the world will be vastly deceived with regard to the paintings. For the man is a very nice drawer; and has also managed the colouring to advantage; so that he has made exceedingly pretty things, from originals, which are miserable daubings. The company having seen the drawings first, were extremely disappointed, when they afterwards came to view the originals. It is likewise proposed to make a plan of the town, by measuring all the walls, which they find, and taking all the angles; and thus, in some degree, to compensate for the omission of laying it all open.

XXII. *An Occultation of the Planet Venus by the Moon in the Day-time, observed in Surrey-street, London, April 16, 1751, O. St. by Dr. John Bevis.*

Read April 18. ^{1751.} **F**INDING many had gotten a notion from the almanac-makers, that it would be next to impossible to observe this occultation, I was resolved to give attention to it; well remembering, that I had several times seen Venus on the meridian with a three-foot transitory, when she was much nearer her superior conjunction with the sun, than now. The whole matter was to direct a tube

tube so, as to find her out a little before her ingress, and to manage the instrument so, as also to have sight of her at the instant of her egress. And knowing, that Mr. Short is never unprovided with one or more instruments exceedingly well adapted to this and other purposes, the same that he has described in *Phil. Transf.* No 493; which, for its easy removal from place to place, may be consider'd as a sort of portable observatory, I intimated my intention to him the evening before; who was so kind as to set up two of the said instruments, which I found rectified, and ready for observation, when I visited him the next morning.

One of these, placed near his clock, he intended for his own use, and the other was for me. I had also with me a watch of Mr. Graham's make, which shewed seconds, and was set exactly to the clock.

A little after 10 Mr. Short waited upon His Grace the Duke of Queensbury, and Mr. Pringle, to the apartment where I was; who, after taking a look at Venus, which I had then brought into the telescope, seated themselves near me, and I applied myself attentively to the observation.

The air was of itself exceedingly clear; but the wind, being in the north-east quarter, brought such drifts of smok, as much impaired the distinctness of Venus, which however look'd round. Several minutes before I expected it, the figure of the planet was manifestly alter'd; upon which I called out to Mr. Short to hasten to his instrument, which he did, but was too late. I never stirred my eye from mine, before the total ingress, at $10^h 39' 30''$ by the watch, which

which I compared with the clock, and found it had not altered in the least.

From my first perceiving the change of the figure, to the intire ingrefs, could not be a full minute.

By a flight *calculus* I had made, the occultation was not to last half an hour; but the ingrefs considerably anticipating it, I conjectured, that, on the contrary, the egress would be later, as it proved to be.

I must here take notice, that not the least glimpse of the moon, then not two days old, could be discerned: so that the business of securing Venus, at the instant of her emerfion, within the field of the telescope, over which she passed in about $2' 10''$, depended intirely on a due management of the screw, which gave motion both to the equatorial or horary plate, and to the telescope. A little after 11 I brought the point of the hour-circle, answering to Venus, to the index, and might then have seen her near the middle of the field, had she already emerged. Every two minutes after I was careful to turn the screw so much, as to be sure of keeping her within the field. At length clapping my eye to the instrument immediately after one of these operations, I perceived her quite emerged and round: this was at $11^h 13' 15''$ by the watch, which still kept exact pace with the clock.

I cannot think my eye had been removed more than a minute: my Lord Duke judged not quite so much.

Mr. Short had the misfortune not to recover sight of Venus till about a minute later than I did, for want of an assistant, who knew how to govern the screw.

Venus pass'd the meridian in the transitory a
 $1^h 37' 55''$ afternoon by the clock: the sun pass'd
 this day at $11^h 57' 27''$; and yesterday, the 15, at
 $11^h 57' 28''\frac{1}{2}$; whence it is easy to reduce all to ap-
 parent time, as follows :

Total ingrefs of Venus	1751, Apr. 15	22	42	02
Her total emerfion	—	—	23	15 47
Her meridian tranfit	—	16	01	40 29

Now, fupposing the whole difk to
 have taken up one minute, as it
 feem'd thereabout, both in the ingrefs
 and egrefs, the middle of the occu-
 lation muft have been ——— 15 22 58 $24\frac{1}{2}$

And the duration, with refpect to
 the centre of Venus ——— 33 45

In this account I have been the more particular
 as to circumftances, in hopes to point out, in fome
 meafure, to fuch, as may not be much converfant
 in obfervation, how to provide, and what to do,
 on a like occafion; but more efpecially to recom-
 mend the more frequent ufe of the polar axis; the
 great conveniency whereof I have frequently expe-
 rienced, not only in readily finding and eafily pur-
 fuing a celeftial object, by day as well as by night,
 but in many other regards, as in comparing un-
 known phaenomena, as comets, &c. with known
 ones, in any fituation, only by the addition of a
 graduated fector; according to Mr. Graham's excel-
 lent contrivance; in meafuring diameters, and repeat-
 ing the menfuration, as faft as you pleafe, with the
 micrometer; which, in this way of application,
 admits

admits of a far simpler construction than in any other. Add to these the very easy, but otherwise impossible, management of the most heavy and cumbersome instruments, such as the sector, which the late Mr. Flamsteed made use of for measuring angular distances at Greenwich.

When the great reflecting telescope, that is set up at Marlborough-house, was nigh finished, it was proposed to support and direct it by means of a complicated machinery, intirely different from the apparatus, which is now applied to it. This I strongly opposed in behalf of a polar axis, which was at last agreed upon; and as soon as it was executed, it appeared, to the full satisfaction of the generous owner, and the curious artist, that so vast a weight as more than one thousand pounds could be moved and directed at pleasure, even by a stranger, with a finger and a thumb.

J. Bevis.

Read April 18. 1751. I AM informed by Mr. John Canton, that he observed the occultation of Venus by the moon last Tuesday, at his house in Spital-square, and found the immersion at $10^h 42' 20''$ a.m. emergence at $11 15 40$

April 18, 1751.

J. Short.